



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,391	09/16/2003	Kenneth J. Hill	G&C 30566.226-US-U1	2921
22462	7590	06/22/2005	EXAMINER	
GATES & COOPER LLP HOWARD HUGHES CENTER 6701 CENTER DRIVE WEST, SUITE 1050 LOS ANGELES, CA 90045			VON BUHR, MARIA N	
			ART UNIT	PAPER NUMBER
			2125	

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,391

Applicant(s)

HILL, KENNETH J.

Examiner

Maria N. Von Buhr

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003 & 28 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06282004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

22

DETAILED ACTION

1. Claims 1-39 are pending in this application.
2. Applicant's claim for domestic priority under 35 U.S.C. §119(e) is acknowledged.
3. Examiner acknowledges receipt of Applicant's information disclosure statement, received 28 June 2004, with accompanying reference copies. This submission is in compliance with the provisions of 37 CFR §1.97. Accordingly, it has been taken into consideration for this Office action.
4. The drawings are objected to, because Figures 4, 6-8, 10, 1, 14, 15, 18, 19, 21-24, 28, 33, 37 and 38 contain portions which are shaded too dark, and Figures 34-36 are too light. Hence, the figures cannot be discerned clearly.
5. Corrected drawing sheets in compliance with 37 CFR §1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR §1.121(d). If the changes are not accepted by Examiner, Applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
6. The disclosure is objected to, because the citation of a related application, at page 3 of the specification, needs to be updated with the current status.
7. The following is a quotation of the second paragraph of 35 U.S.C. §112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which Applicant regards as his invention.
8. Claims 1-39 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

In claims 1 and 27, by analogy with a single means claim, the claim has been presented as a single step method, or program product embodying a single step method, respectively, which would seem to encompass any and all manner of performing the desired result. This presents ambiguity with regard to the metes and bounds of the claim. See MPEP §2164.08(a). Also, the body of the claim does not seem to accomplish the posed task of the preamble, since no provision has been made for how the mere “performing of a Boolean operation” necessarily accomplishes “sculpting solids with sheet bodies.”

In claims 6, 19 and 32, there is no context for “which side of the sheet should be used,” since the claimed invention has not provided for any “use” of the sheet.

In claims 10, 11, 23, 24, 36 and 37, there is no clear and proper antecedent basis for “the limiting sheets.”

In claim 14, the claim has essentially been presented as a single means claim (i.e.; a computer executing a solid modeling system performing the one claimed operation), which would seem to encompass any and all manner of performing the desired result. This presents ambiguity with regard to the metes and bounds of the claim. See MPEP §2164.08(a). Also, the body of the claim does not seem to accomplish the posed task of the preamble, since no provision has been made for how the mere “performing of a Boolean operation” necessarily accomplishes “sculpting solids with sheet bodies.”

The remainder of the claims are rejected as necessarily incorporating the above-noted ambiguities of their parent claims.

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-5, 14-18 and 27-31 are rejected under 35 U.S.C. §102(b) as being clearly anticipated by Sowar et al. (U.S. Patent No. 5,351,196; cited by Applicant), which disclose a “method and apparatus for solids based machining” that “relates to processes for the automatic generation of numerical control (NC) tool paths in a CAD/CAM environment” (see the abstract).

As per the claims, Sowar et al. teach that “because a solid model describes parts completely and unambiguously, higher level operations such as union, difference and intersection of part models are possible. For instance, to create a hole in a part, a solid model of a cylinder can be positioned on a solid model of the part and geometrically subtracted--leaving the desired hole. Mathematically, this is a Boolean

operation" (col. 2, lines 46-68), and "the solid models are classified using attributes such as stock, part, and delta volume. Attributes may also be added to faces, holes, edges, vertices and features. The solid models and the attributes attached to the models, faces, features, etc. are used to determine successive depths of cut for the machining process ... Each depth of cut is used to generate a slicing plane which is intersected with the solid modeling faces to determine the curves representing regions that the tool may enter. The solid model and the attached attributes are thus used to prevent the tool from gouging the part" (col. 3, lines 14-27). In this case, the "slicing plane" of Sowar et al. is deemed to be analogous to the instantly claimed "sheet body," the Boolean operations of Sowar et al. (i.e.; "union, difference and intersection") are deemed to be analogous to the instantly claimed Boolean operations specified as "join" and "cut," and the assigning of attributes to the solid models of Sowar et al. is deemed to be analogous to the instantly claimed labeling of sheet bodies. See also, at least, col. 4, lines 34-36 and 52-58; col. 7, lines 15-31; col. 8, lines 19-41; col. 9, lines 17-30; and cols. 10-14.

11. Claims 8-13, 21-26 and 34-39 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. §112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

None of the prior art of record, neither alone nor in combination, is deemed to fairly teach and/or suggest, the instantly claimed "performing a pre-processing phase to create a cellular topology graph of tool and blank bodies created from the part body and the sheet bodies" (of claims 8, 21 and 34) nor the instantly claimed "generating a cellular topology graph that contains a vertex for each cell in the collection of solid cells, and graph edges between pairs of vertices whenever their associated cells in the collection of solid cells are adjacent" (of claims 9, 22 and 35), when taken in combination with the other instantly claimed elements of Applicant's invention.

13. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. Applicant is advised to carefully review the cited art, as evidence of the state of the art, in preparation for responding to this Office action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria N. Von Buhr whose telephone number is 571-272-3755. The examiner can normally be reached on M-F (9am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Maria N. Von Buhr
Primary Patent Examiner
Art Unit 2125

MNVB
6/17/05